RECENT COLLECTIONS AND STATUS OF *LESQUERELLA LYRATA* ROLLINS (CRUCIFERAE)

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ABSTRACT

The narrow endemic *Lesquerella lyrata* Rollins (Cruciferae), considered by Department of Interior specialists as possibly extinct, was found in several localities, including the type locality, in April 1984. Ideas as to its sporadic yet abundant occurrence are proposed, and positive management practices suggested.

Lesquerella lyrata Rollins is a narrow endemic reported to be restricted to a few localities (Fig. 1) in the eastern portion of Franklin County, Alabama (Rollins 1955, Rollins and Shaw 1973). It is a component of the glade flora and is generally found in association with limestone outcroppings. The rarity and restricted distribution of *L. lyrata* have resulted in its listing as an endangered species in Alabama (Freeman et al. 1979a, 1979b). *Lesquerella lyrata* also is currently under review by the U. S. Department of the Interior (1980) as an endangered or threatened species and is included in the rare plant inventory prepared by Kral (1983) for the USDA Forest Service. Recent collections of *L. lyrata* reported in this paper are of significance since the Department of the Interior lists *L. lyrata* as possibly extinct.

HABITAT AND POPULATION SIZE

During early April of 1984, *L. lyrata* was rediscovered near the type locality described by Rollins (1955) as 7 miles east of Russellville near Richardson's Crossing. Even earlier that month a large population of *L. lyrata* was found on limestone outcroppings and in adjacent fields in the vicinity of Spring Valley in Colbert County, Alabama (Fig. 1). The population at Richardson's Crossing consisted of several hundred plants scattered in a field that was plowed during the fall of 1983. An adjacent field that was not plowed in the fall of 1983 but apparently cropped during 1983 was found to harbor more than a thousand plants of bladderpod. An additional

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population of a few dozen individuals (Fig. 1) was observed along the roadside of County 83 approximately 0.8 mile north of Richardson's Crossing.

The population of *L. lyrata* just north of Spring Valley consisted of several thousand plants scattered along the roadside, in adjacent fields, and around small limestone outcroppings. Hundreds of plants occurred in unplanted cotton fields that were plowed and disked in the fall of 1983. An additional population of a couple of hundred plants was observed in the same glade system in a pasture approximately one-half mile west of the large population.

The presence of large populations numbering in the thousands was confirmed again in late March and early April of 1985 just north of Spring Valley and at Richardson's Crossing. A large population of *L. lyrata* also was present at Richardson's Crossing in the early spring of 1983 (Reed C. Rollins pers. comm.). A population of several thousand plants was found in 1985 in a pasture 0.8 mile north of Richardson's Crossing where only a few dozen plants were observed in April 1984. Although the two other localities cited in the original description by Rollins (1955) were visited during April 1985 as well as other suitable habitat in the eastern portion of Franklin County, no additional populations of *L. lyrata* were located.

The populations of *L. lyrata* from Franklin and Colbert counties represent two separate and distinct glade systems. While both are in the Interior Low Plateau described by Fenneman (1958), the Spring Valley populations are in the Tennessee Valley and those at Richardson's Crossing in the Moulton Valley. These two subdivisions of the Interior Low Plateau are separated by Little Mountain which is characterized by sandstone outcroppings described by Harper (1942). The collection sites in the Tennessee Valley and Moulton Valley vary by about 200 ft. elevation.

RECOMMENDED MANAGEMENT PRACTICES

Lesquerella lyrata likely evolved on the glade systems that are now highly disturbed and occur as isolated pockets surrounded by agricultural lands. Acquisition and protection of the glade systems containing *L. lyrata* are paramount in protecting the species. The glade system near Richardson's Crossing also has other rare plant species listed at the State and Federal level such as *Leavenworthia alabamica* Rollins var. *alabamica*, *Delphinium alabamicum* Kral, *Psoralea subacaulis* T. & G., *Isoetes butleri* Engelm., *Talinum calcaricum* Ware, *Petalostemum gattingeri* Heller, and *P. foliosum* Gray. The latter species was reported by Baskin and Baskin (1973) just south of Richardson's Crossing but has not been relocated by the authors.

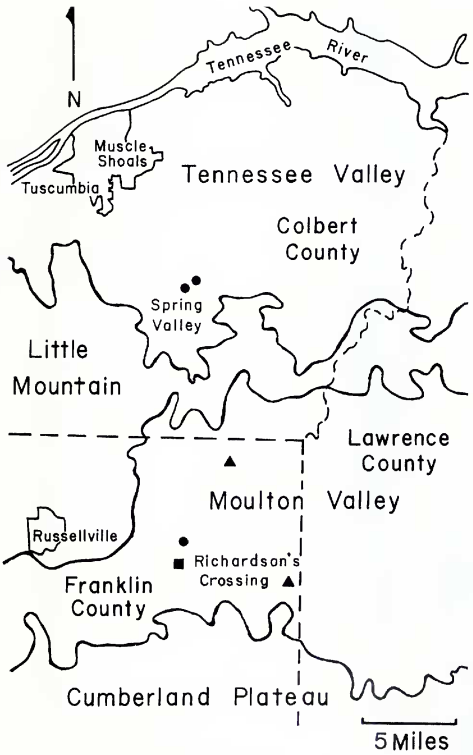

Figure 1. Distribution of *Lesquerella lyrata* in northwestern Alabama.

The large numbers of *L. lyrata* in cultivated fields is a phenomenon that also has been observed for *Leavenworthia alabamica* var. *alabamica*, *L. crassa* Rollins, and *Lesquerella densipila* Rollins at scattered localities in Colbert, Franklin, Morgan, and Lawrence counties, Alabama. These taxa apparently move from the thin soil of glades into fields that are planted in cotton or soybeans on an annual basis. The typical mid-May to June planting of soybeans allows these early flowering annuals to set seed prior to soil tillage and planting. The presence of *Lesquerella* and *Leavenworthia* in unplanted cotton fields may be sporadic since the mid-April to May planting and the earlier spring application of pre-emergent herbicides may prevent or preclude the establishment of large populations. However, wet springs such as that in 1984 that delay soil tillage may allow germination and completion of the life cycle of *Lesquerella* and *Leavenworthia*. The importance of seed banks in cultivated fields in relation to survival of these species should not be ignored. Conservation easements with private land owners should be pursued. As evidenced by the populations numbering in the thousands, agricultural use and survival of these species are not incompatable. Preservation of selected glade systems along with easements that harmonize tillage patterns and herbicide applications with the life history of these rare annuals should insure their survival. Further research is required relating to the use of herbicides and germination of species of *Lesquerella* and *Leavenworthia*.

CITATION OF RECENT COLLECTIONS

ALABAMA. **Colbert Co.**: sandy silty clay of plowed field by Co. 77 just N (0.5 mi) of Spring Valley, 2.2 mi S of jct AL 157 and Co. 77, 2 Apr 1984, *Kral & Webb 71171* (VDB); thin dark soils over limestone and in small limestone glade, horse pasture by schoolhouse, Spring Valley School, W side of Spring Valley, 2 Apr 1984, *Kral & Webb 71175* (VDB). **Franklin Co.**: fallow field on N side of AL 24, 6.0 mi E of jct AL 24 and US 43 (in Russellville) along AL 24 near jct with Co. 83, 7 Apr 1984, *Webb & Pardue 4943* (TENN, VDB); same locality, 22 Mar 1983, *Rollins & Rollins 8317* (GH); pasture on E side of Co. 83, 0.8 mi N of jct with AL 24 (Richardson's Crossing), ca 6 mi E of Russellville, 6 Apr 1985, *Webb 5077* (TENN, VDB).

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